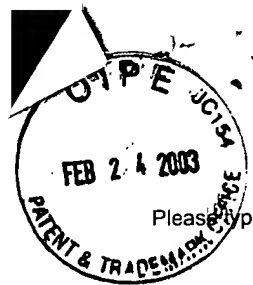


1724

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PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paper Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<h1>TRANSMITTAL FORM</h1> <p>(to be used for all correspondence after initial filing)</p>	Application Number	09/920,341
	Filing Date	08/01/01
	First Named Inventor	Choi et al.
	Group Art Unit	1724
	Examiner Name	Unassigned
Total Number of Pages in This Submission	Attorney Docket Number	PA17-07V06

## ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): 1. Form PTO-1449 with twenty-three (23) references 2. Return Receipt postcard to Kenneth C. Brooks
Remarks		

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Kenneth C. Brooks
Signature	<i>Kenneth C. Brooks</i>
Date	2/20/03

## CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on this date: 02-20-03			
Type or printed name	Jennifer Shaw	Date	02-20-03
Signature	<i>Jennifer Shaw</i>	Date	02-20-03

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.



#9  
A.C.H.  
3303

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Choi et al.

PATENT APPLICATION

Serial No.: 09/920,341

Group Art Unit: 1724

Filing Date: August 1, 2001

Examiner: Unassigned

For: METHODS FOR HIGH-PRECISION GAP AND ORIENTATION SENSING  
BETWEEN A TRANSPARENT TEMPLATE AND SUBSTRATE FOR IMPRINT  
LITHOGRAPHY

RECEIVED  
FEB 26 2003  
TO 1700

INFORMATION DISCLOSURE STATEMENT

Commissioner  
for Patents  
Washington, D.C. 20231

Sir:

The following information is submitted in compliance with Applicants' duty of disclosure under 37 C.F.R. § 1.56. Form PTO-1449 and a copy of each reference recited below accompanies this document. It is respectfully requested that the cited information be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

ISSUED PATENTS

<u>Patent Number</u>	<u>Inventor</u>	<u>Grant Date</u>
4,440,804	Milgram	Apr. 3, 1984
4,544,572	Sandvig et al.	Oct. 1, 1985
5,723,176	Keyworth et al.	Mar. 3, 1998
5,747,102	Smith et al.	May 5, 1998
6,125,183	Jiawook et al.	Sep. 26, 2000
6,234,379	Donges	May 22, 2001

### ISSUED PATENTS

<u>Patent Number</u>	<u>Inventor</u>	<u>Grant Date</u>
6,245,213	Olsson et al.	Jun. 12, 2001

### PENDING PATENT APPLICATIONS

<u>Serial Number</u>	<u>Inventor</u>	<u>Filing Date</u>
09/698,317	Choi et al.	Oct. 27, 2000
09/907,512	Sreenivasan et al.	Jul. 16, 2001
09/908,455	Choi et al.	Jul. 17, 2001
09/908,765	Willson et al.	Jul. 19, 2001
09/934,248	Choi et al.	Aug. 1, 2001

### FOREIGN PATENT DOCUMENTS

<u>Document Number</u>	<u>Inventor</u>	<u>Pub. Date</u>
WO 92/17883	Olsson	Oct. 15, 1992
WO 98/10121	Olsson et al.	Mar. 12, 1998
WO 99/45753	Wikström	Sep. 10, 1999
WO 99/63535	Olsson	Dec. 9, 1999
WO 01/53889	Ling et al.	Jul. 26, 2001

### NON-PATENT DOCUMENTS

Lin, "Multi-Layer Resist Systems", Introduction of Microlithography", American Chemical Society, 1983, pp. 287-350, IBM T.J. Watson Research Center, Yorktown Heights, NY 10598.

Cowie, "Polymers: Chemistry and Physics of Modern Materials", 1991, pp. 408-409, 2<sup>nd</sup> Ed, Chapman and Hall, a division of Routledge, Chapman and Hall, Inc., 29 West 35<sup>th</sup> Street, NY, NY 10001-2291.

Chou et al., "Imprint of Sub-25nm Vias and Trenches in Polymers",  
Applied Physics Letters, Nov. 20, 1995, pp. 3114-3116, vol.  
67(21).

Chou et al., "Imprint Lithography with 25-Nanometer Resolution",  
Science, Apr. 5, 1996, pp. 85-87, vol. 272.

Chou et al., "Imprint Lithography with Sub-10nm Feature Size and  
High Throughput", Microelectronic Engineering, 1997, pp. 237-240,  
vol. 35.

Xia et al., "Soft Lithography", Agnew. Chem. Int. Ed.:, 1998, pp.  
550-575, vol. 37.

CERTIFICATE OF MAILING

I hereby certify that this paper  
(along with any paper referred to  
as being attached or enclosed) is  
being deposited with the United States  
Postal Service on the date shown below  
with sufficient postage as first class  
mail in an envelope addressed to: BOX  
PATENT APPLICATION, Commissioner  
for Patents, Washington D.C. 20231

Signed: Jennifer Shaw

Typed Name: Jennifer Shaw

Date: 02.20.03

Respectfully Submitted,



Kenneth C. Brooks  
Reg. No. 38,393



Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449B/PTO

**Complete if Known**

# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 2 of 2

Application Number 09/920,341  
Filing Date 08/01/01  
First Named Inventor Choi et al.  
Group Art Unit 1724  
Examiner Name Unassigned  
Attorney Docket Number PA17-07V06

## **OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	C18	LIN, "Multi-Layer Resist Systems", Introduction of Microlithography, American Chemical Society, 1983, pp. 287-350, IBM T.J. Watson Research Center, Yorktown Heights, New York 10598.	
	C19	COWIE, "Polymers: Chemistry and Physics of Modern Materials", 1991, pp. 408-409, 2 <sup>nd</sup> Ed, Chapman and Hall, a division of Routledge, Chapman and Hall, Inc., 29 West 35 <sup>th</sup> Street, NY, NY 10001-2291.	
	C20	CHOU et al., "Imprint of Sub-25 nm Vias and Trenches in Polymers", Applied Physics Letters, November 20, 1995, pp. 3114-3116, vol. 67(21).	
	C21	CHOU et al., "Imprint Lithography with 25-Nanometer Resolution", Science, Apr. 5, 1996, pp. 85-87, vol. 272.	
	C22	CHOU et al., "Imprint Lithography with Sub-10nm Feature Size and High Throughput", Microelectronic Engineering, 1997, pp. 237-240, vol. 35.	
	C23	XIA et al., "Soft Lithography", Agnew. Chem. Int. Ed., 1998, pp. 550-575, vol. 37.	

Examiner Signature

Date Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

# PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT  
OR THE DECLARATION

(PCT Rule 44.1)


To:  
CONLEY, ROSE & TAYON, P.C.  
Attn. Meyertons, Eric B.  
P.O. Box 398  
Austin, TEXAS 78767-0398  
UNITED STATES OF AMERICA

Date of mailing  
(day/month/year) 24/10/2002

Applicant's or agent's file reference 5119-08302	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US 01/24216	International filing date (day/month/year) 01/08/2001

Applicant  
BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM

- ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.  
Filing of amendments and statement under Article 19:  
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):  
  
When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.  
  
Where? Directly to the International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland  
Facsimile No.: (41-22) 740.14.35  
  
For more detailed instructions, see the notes on the accompanying sheet.
- ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
- ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:  
☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
- Further action(s): The applicant is reminded of the following:  
  
Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.  
  
Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).  
  
Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Isabelle Porrachia
--	--

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

**The amendments must be made in the language in which the international application is to be published.**

#### What documents must/may accompany the amendments?

##### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.



## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### "Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

**It must be in the language in which the international application is to be published.**

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

### Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>5119-08302</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 01/ 24216</b>	International filing date (day/month/year) <b>01/08/2001</b>	(Earliest) Priority Date (day/month/year) <b>01/08/2000</b>
Applicant  <b>BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.  
☐ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☒ **Certain claims were found unsearchable (See Box I).**

3. ☒ **Unity of invention is lacking (see Box II).**

**4. With regard to the title,**

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

- ☒ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

**38** \_\_\_\_\_

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/24216

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 G03F7/00 G03F9/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G03F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data, PAJ, IBM-TDB, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>EP 0 867 775 A (USHIO ELECTRIC INC)            30 September 1998 (1998-09-30)</p> <p>the whole document</p> <p>-/--</p>	<p>1-37,            42-51,            57-64,            66,            71-78,            84-91,            93,            98-106,            112-119,            121,            123-125,            147,154,            156-171,            183,190,            192-199,            211,218,            220-227,            239</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 July 2002

Date of mailing of the international search report

24/10/02

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

HAENISCH U.P.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/24216

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>---  US 5 355 219 A (ARAKI KIYOSHI ET AL)  11 October 1994 (1994-10-11)</p> <p>the whole document</p>	1,37,66, 93,121, 190,218
X	<p>---  US 5 218 193 A (MIYATAKE TSUTOMU)  8 June 1993 (1993-06-08)</p> <p>the whole document</p>	1,37,66, 93,121, 190,218
A	<p>---  WHITE D L ET AL: "Novel alignment system  for imprint lithography"  44TH INTERNATIONAL CONFERENCE ON ELECTRON,  ION, AND PHOTON BEAM TECHNOLOGY AND  NANOFABRICATION, RANCHO MIRAGE, CA, USA,  30 MAY-2 JUNE 2000,  vol. 18, no. 6, pages 3552-3556,  XP002204287  Journal of Vacuum Science &amp; Technology B  (Microelectronics and Nanometer  Structures), Nov. 2000, AIP for American  Vacuum Soc, USA  ISSN: 0734-211X</p>	
A	<p>---  US 6 088 103 A (EVERETT PATRICK N ET AL)  11 July 2000 (2000-07-11)</p>	
A	<p>---  NORIO UCHIDA ET AL: "A MASK-TO-WAFER  ALIGNMENT AND GAP SETTING METHOD FOR X-RAY  LITHOGRAPHY USING GRATINGS"  JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY:  PART B, AMERICAN INSTITUTE OF PHYSICS. NEW  YORK, US,  vol. 9, no. 6,  1 November 1991 (1991-11-01), pages  3202-3204, XP000268540  ISSN: 0734-211X</p>	
A	<p>---  HAISMA J ET AL: "MOLD-ASSISTED  NANOLITHOGRAPHY: A PROCESS FOR RELIABLE  PATTERN REPLICATION"  JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY:  PART B, AMERICAN INSTITUTE OF PHYSICS. NEW  YORK, US,  vol. 14, no. 6,  1 November 1996 (1996-11-01), pages  4124-4128, XP000721137  ISSN: 0734-211X</p> <p>-----</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/24216

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0867775	A	30-09-1998	JP	3296239 B2	24-06-2002
			JP	10268525 A	09-10-1998
			DE	69806666 D1	29-08-2002
			EP	0867775 A2	30-09-1998
			TW	391035 B	21-05-2000
			US	5999245 A	07-12-1999
-----					
US 5355219	A	11-10-1994	JP	2821073 B2	05-11-1998
			JP	6188176 A	08-07-1994
-----					
US 5218193	A	08-06-1993	JP	2796899 B2	10-09-1998
			JP	4261545 A	17-09-1992
-----					
US 6088103	A	11-07-2000	US	5808742 A	15-09-1998
			WO	9745773 A1	04-12-1997
			WO	9638706 A1	05-12-1996
-----					

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/24216

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-37 42-51 57-64 66 71-78 84-91 93 98-106 112-119  
121 123-135 147 154 156-171 183 190 192-199 211  
218 220-227 239

method and apparatus for patterning a substrate using a template, characterized by the use of light based measurement to set and monitor the gap between the template and the substrate

2. Claims: 122,136,137-142,155,172-178,191,200-206,219,228-234

specific elements of an orientation stage in a patterning device, said orientation stage being characterized by flexure members. The flexure members are believed to allow fine control of spatial orientation together with application of controlled pressure during imprinting. There is however no link with the particular measuring device or method used to determine the spacing.

3. Claims: 143-145,179-181,207-209,235-237

a precalibration stage in a patterning device.

4. Claims: 146,182,210,238

a patterning device characterized by a substrate stage using a vacuum chuck.

5. Claims: 38-41,67-70,94-97,148-149,184-185,212-213,240-241

patterning device and method characterized by making use of a fluid dispenser

6. Claims: 52-56,79-83,107-111,150-153,186-189,214-217,242-245

method and apparatus for patterning a substrate, characterized by the composition of either the template or the substrate

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

Continuation of Box 3.

Claims Nos.: 65 92 120

Claims 65, 92 and 120 refer to unspecified semiconductor devices produced according to a particular method. Since it appears that these devices contain no specific permanent features unambiguously linked to the method, they are undistinguishable from any common semiconductor device.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.